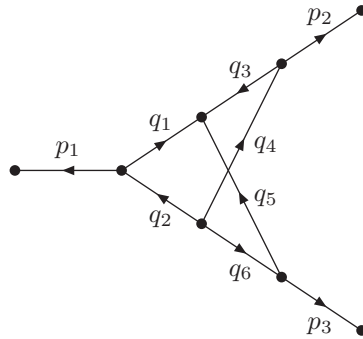


Exercises for the course “Feynman integrals” Sheet 2

Exercise 3

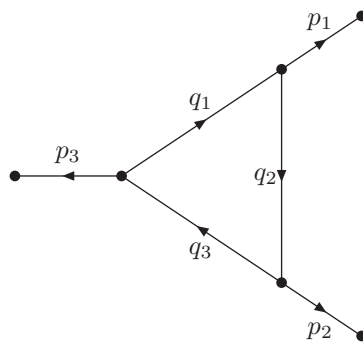
Determine the graph polynomials \mathcal{U} and \mathcal{F} for the graph



for the case where all internal masses are zero (but $p_1^2 \neq 0$, $p_2^2 \neq 0$, $p_3^2 \neq 0$).

Exercise 4

Calculate with the help of the Feynman parameter representation the one-loop triangle integral



$$I_{v_1 v_2 v_3} = e^{\epsilon \gamma_E} (\mu^2)^{v - \frac{D}{2}} \int \frac{d^D k}{i\pi^{\frac{D}{2}}} \frac{1}{(-q_1^2)^{v_1} (-q_2^2)^{v_2} (-q_3^2)^{v_3}},$$

for the case where all internal masses are zero ($m_1 = m_2 = m_3 = 0$) and for the kinematic configuration $p_1^2 = p_2^2 = 0$, $p_3^2 \neq 0$.